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JAN 11 1988
Economic Development
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Volume 9, number 1
January 1988

Newsline

Marianne English appointed Head of Resource Technologies Department

Dr. Marianne English, a scientist with extensive experience in cloud physics and numerical modelling, has been appointed Head of the Resource Technologies Department.

Dr. English holds a Ph.D. in Meteorology from McGill University. While there she developed a numerical model to predict the growth of hailstones in Alberta hailstorms—work for which she won the President's Prize for distinguished scientific work from the Canadian Meteorological Society. She is currently a member of the Canadian Meteorological and Oceanographic Society, the American Meteorological Society (AMS), and the AMS Committee on Planned and Inadvertent Weather Modification.

In 1974 she joined the Alberta Research Council as an Assistant Research Officer, and Group Leader of the Numerical Modelling Group with the then Atmospheric Sciences Department. Here, she used cloud models to predict hailfall characteristics, so that predictors could be compared with measurements, and the effect of cloud seeding on hail evaluated.

In following years, Dr. English's management responsibilities within the Atmospheric Sciences Department increased, ending with her appointment as Senior Research Officer and Group Research Manager. When the Resource Technologies Department was formed, she was appointed manager, Business Development.

Dr. Marianne English

Dr. English says that business development efforts, designed to increase industrial contracts, will be emphasized, along with the development of a new mandate and role for the department, while maintaining long-term, ongoing projects in transportation engineering and surface water engineering.

"We are examining a number of opportunities which will allow us to develop a team approach to new business. An example is the Mesoscale Weather Initiative, or severe summer storms project proposal, recently brought forward. Eventually, we would like to see this project incorporate a hydrometeorology component that would involve our engineers looking at such things as the effect of climate change on stream flow and run off," she says.

Much effort also has been devoted to the establishment of a numerical modelling facility. "Our aim is to use the expertise available to us in the area of computer modelling to provide industry's decision makers with tools they can use to assess quickly the environmental impact of their operations."

Acid Deposition Models are one such example. Implemented for Alberta Environment, the models are being applied in the Athabasca Oil Sands area to test emissions from plants, and relate the information to the acidity of soils and lakes in the area.

"Our primary focus within the department will continue to be on technology development, application, and transfer—whether this be for industry, government, or other departments within the Research Council."

Expert systems workshop

Employees interested in expert systems technology will want to take advantage of the Advanced Technologies Department's one-day workshop Tuesday, January 26.

The workshop was designed by the Calgary-based department to introduce Edmonton employees to basic concepts of expert systems design. Topics will include knowledge representation, inference methods, knowledge acquisition, commercial applications of expert systems, and current tools. Several expert system tools and applications also will be demonstrated.

The cost of the workshop is $100, and includes lunch. It will run from 8:30 a.m. to 4:30 p.m. in the multipurpose room of the southeast Edmonton site.

Staff who wish to register, or obtain additional information, may contact Patricia Fitzgerald at 297-2679 (Calgary), or Hope Tupper at 450-5451 (Edmonton).

Newsline is a monthly publication for the employees of the Alberta Research Council.

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and direct all questions to
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Reminder — appraisal policy revised

As the time for annual performance evaluations draws near, staff are reminded of the changes made last year to free performance appraisal interviews from a preoccupation with ratings and merit pay implications.

Ratings have been eliminated from the appraisal process so that interviews can focus on individual achievement relative to individual objectives, and on employee development.

Merit pay decisions will be made at a later date using a ranking process which assesses staff achievement, according to specific criteria, on a comparative basis with others in the department. A task force was established last year to develop a common approach to the selection of these criteria. They will issue a report shortly that will recommend departmental discretion in selecting the criteria relevant to their area, and suggest guidelines for the actual ranking of staff.

Ranking decisions, and the resulting pay determinations, will be communicated to staff at a separate interview in May-June by the Department Head.

Staff who have questions or concerns regarding the performance appraisal or merit pay process, are asked to contact Wolf Gut, Human Resources Department, at 450-5139.

Henry Wasylyk 1942-1987

John Henry (Hank) Wasylyk, research technologist in the Coal and Hydrocarbon Processing Department, died December 13 at the age of 45.

Henry received a diploma in Chemical Technology from the Southern Alberta Institute of Technology in 1964. He joined the Research Council in 1974, working as a Chemical Technologist for the then Coal Research Department.

He remained with the Coal and Hydrocarbon Processing Department throughout his career with the Research Council. His contributions and responsibilities included: planning, designing and building high pressure piloting equipment; consultation and discussion with colleagues and project leaders on research concepts and results; operation and maintenance of autoclaves; performance of complete product work-ups; operation of the ash/moisture analyzer; and performance of spinning band distillations. In 1985, he introduced important modifications to the existing distillation procedure and participated in the development of new product work-up procedures for the separation of bitumen derived liquids.

He is remembered by those he worked with for his warm and friendly disposition, his devotion to his family, his ability to work well as part of a team, the quality of his work, his good judgement, and for being dependable, accurate, responsible and thoughtful of others.

Henry is survived by his wife, Diane; daughter, Leeane and son, Bradley, both at home; his mother, Anna Wasylyk, Edmonton; three brothers, Eugene and wife Mary of Edmonton, Walter and wife Carol, and Michael, all of Calgary; two sisters, Effie Stafford, Mary Marchuk and husband Nick, all of Edmonton.

Funeral service was held in Edmonton December 16.

Group RRSP available

With preparation of personal income tax returns looming on the horizon, staff may want to consider contributing to the Alberta Research Council's Group Registered Retirement Savings Plan—available since October.

The plan is a collection of individual RRSP accounts, which are administered, as a group, by Confederation Life. Employees may join the Group RRSP during the first two weeks of any month by completing the appropriate enrollment forms, and directing monthly or periodic payments from their paycheque. The option of making a one-time Allocation Account transfer into the plan also is available.

Five investment choices are available under this plan, including five-year Guaranteed Deposit, Short Term Fund, Canadian Common Stock Fund, Bond Fund, and Balanced Fund. Contributions may be directed to any or all of these options. The minimum deposit allowed is $25.

Participation in the Group RRSP is subject to a monthly fee of two dollars and the mutual funds have a management fee of .80 per cent. Investment performance is listed each month on the electronic bulletin.

Those requiring further information on this plan may contact Maja Hoeing, Human Resources Department, at 450-5138.

Employees learn wilderness safety

Concern for the safety of Alberta Research Council field staff was behind the development of the Wilderness First Aid Course, given by Fritz Kamprath, Facilities and Safety Management.

Research Council staff are involved in field work throughout the province —often conducted in isolated areas many miles from medical facilities. Fritz felt that the Standard and Advanced First Aid courses did not provide the additional knowledge required for first aid in wilderness situations.

The four-day course was developed through the Canadian Red Cross Society, Wilderness First Aid Committee, of which Fritz is a member. By simulating actual rescue situations in the parkland surrounding the Research Council's southeast Edmonton site, participants were taught how to perform first aid in a wilderness setting. They were also given an awareness of their personal responsiblility to ensure field work is carried out in the safest manner possible.

Doug Boisvert, Geological Survey Department; Pierre Mostert, Terry Ridgeway, and Jack Thompson, all of the Resource Technologies Department, successfully completed the course. Fritz hopes to educate more field staff with a second course this spring.

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Deep waste injection study gets results

What happens when liquid wastes resulting from in situ oil sands activity are injected deep into the ground? What are the impacts on the deep environment and on water management practices?

These questions were posed by Alberta Environment in 1985 in response to oil sands development in the Cold Lake area. Some of the answers were provided by the Basin Analysis Group of the Alberta Geological Survey in a report this spring resulting from a jointly funded project of the Alberta Research Council and Alberta Environment. They were presented again in September, at a workshop organized by Alberta Environment, Environment Canada, and the Canadian Petroleum Association, and titled "Subsurface Disposal Related to In-Situ Oil Sands Projects".

Dr. Stefan Bachu is group manager of the Basin Analysis Group, and project manager of the study, "Evaluation of deep waste disposal, Cold Lake area, Alberta and Saskatchewan", which ends in March. His research team studied the effects of the injection of liquid wastes at given industrial rates, and at 27 sites, over a predicted period of 30 years, to determine the impact of oil sands operations in the area.

As part of its research, the Group first had to establish regional hydrogeological characteristics of the deep strata, which were based on information at 14800 wells over an area of 60000 square kilometers. Computer modelling techniques also were used to simulate deep waste injection at the given rates and sites for the next 30 years.

"We then looked at the possible geochemical reactions between chemicals present in the waste liquids and those present in the host environment," Dr. Bachu says. "If reactions were occurring, would these affect the permeability and porosity of the host rock—the speed and direction of waste liquid movement?"

SOLMINEQ.87, a water-rock interaction model developed by the U.S. Geological Survey and the Research Council, was implemented to analyze geochemical processes. Within the area of study, it was determined that the induced geochemical processes, as well as the thermal effects of liquid waste disposal, were negligible.

The group then turned to the problem of pressure build-up during waste injection. Would pressure build-up cause the rock to fracture? Would this change the permeability/porosity characteristics? Could fractures lead the waste liquid back up through the strata, where it could contaminate other energy resource deposits in the area, or even the local groundwater supply?

Using the regional hydrogeological values in the study area, Dr. Bachu's team established that the pressure build-up was less than the fracturing threshold at distances greater than 500 to 1000 meters from the injection wells, and that over the predicted period of operation there would be no interference between injection sites. It was further determined that, at distances greater than five kilometers from the injection wells, contaminants would move through their host environment with velocities in the order of only one centimeter per year.

The final phase of the study will determine the pressure build-up versus the fracturing threshold at distances less than 500 meters from the injection wells.

Alberta Environment is using these results to assist in developing a sound water management policy in the Cold Lake area. The results obtained by the Basin Analysis Group can be used to determine if the ground can sustain deep waste injection at current, or predicted rates. It will also be possible to predict how much water can be taken out of the local environment for industrial operations, versus how much will be needed by the local population. This will impact the amount of recycling of waste water required of the oil sands plant operators.

Results obtained have opened the door to further research for the Basin Analysis Group. "Based on the expertise and methodology developed, we are starting a study this year on waste disposal and related environmental matters at the Alberta Oil Sands Technology Research Authority (AOSTRA) Underground Test Facility near Fort McMurray. Alberta Environment, Environment Canada, and the Canadian Petroleum Association are now working to establish future directions of research to be performed by the Research Council in this field." Dr. Bachu says.

The research, which is currently recognized in Alberta and Canada, will obtain wider attention when the results are presented at three international conferences this year, and when two Research Council bulletins resulting from this work are published.

Ten employees who completed an in-house supervision skills course received certificates from Dr. Robert Green, vice-president, Operations. The course, developed by the Human Resources Department, stresses the importance of good communications and interpersonal skills. From left, front row, Cindy Stachniak, Materiel Management; Joanne Boothby, Oil Sands and Hydrocarbon Recovery Department; Wolf Gut, instructor; Holly Turner, Terrain Sciences Department; Dr. Green; back row: Dr. Raj Rajan, Oil Sands and Hydrocarbon Recovery Department; Phil Harris, Oil Sands and Hydrocarbon Recovery Department; Dixon Edwards, Geological Survey Department; Alex Schwarzer, Terrain Sciences Department; Dr. Tawfik Nasr, Oil Sands and Hydrocarbon Recovery Department; Hans Kretschmer, Coal and Hydrocarbon Processing Department; Martin Stanley-Jones, Resource Technologies Department.

For those interested in taking this course, it will be offered again in February.

Staff notes

Don Macdonald of the Geological Survey Department recently won a Best Paper Award for "Coals Formed in Coastal Environments Within the Upper Cretaceous of the Alberta Basin". Sharing the award were coauthors Rudy Strobl, Geological Survey Department, and Dr. Peter McCabe, U.S. Geological Survey.

The paper was presented during Energy Minerals Division (EMD) sessions of an American Association of Petroleum Geologists (AAPG) meeting in Boise, Idaho. All three authors will receive their award at the 1988 Rocky Mountain Section AAPG sessions of EMD in Bismarck, North Dakota, in August.

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The paper, "Application of X-ray Imaging to Oil Sands Experiments", prepared by Dr. George Sedgwick, Oil Sands and Hydrocarbon Recovery Department, was chosen as among the eight best papers at the 1987 Canadian Institute of Mining and Metallurgy (CIM) Conference in Calgary, held in June.

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Tom Demchuk, Geological Survey Department, was given an award for best student paper at the American Association of Petroleum Geologists (AAPG) meeting in Halifax recently. His paper was titled, "A Modified *Momipites-Caryapollenites* Palynofloral Lineage: Central Alberta Paleocene Zonation".

Tom has been a summer student with the department for five years (1981-1984 and 1987). He is currently working towards his Ph.D. in the University of Calgary's Department of Geology and Geophysics.

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Marcel Polikar, Oil Sands and Hydrocarbon Recovery Department, has received his Ph.D. in Petroleum Engineering from the University of Alberta with his thesis, "Relative Permeability Measurements in Oil Sands".

Marcel performs computer tomography (CT) scanning experiments on core samples at Clover Bar.

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Dr. Charles Reichert, Oil Sands and Hydrocarbon Recovery Department, recently accepted an appointment to the editorial board of "Fuel Science and Technology International", published by Marcel Dekker, Inc. of New York.

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Dr. Bill Gunter, Oil Sands and Hydrocarbon Recovery Department, has accepted a two-year term as associate editor for the Bulletin of Canadian Petroleum Geology.

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Research Council staff will be in good hands in the event of an emergency—thanks to the Cardio Pulmonary Resuscitation (C.P.R.) courses offered by the Occupational Health Unit. Eight employees have received their C.P.R. training and certification, including: Dan Bizzotto, Murray Carmichael, Rene Estigoy, Marty Schurek, and Anna Truong, all of Coal and Hydrocarbon Processing; Paul Grey, Biotechnology; Brenda Sawyer, Terrain Sciences; and John Thompson, Resource Technologies. Tim Berezniuk, Geological Survey, was recertified in C.P.R.

Four employees also recertified during an advanced first aid attendant course were: Fritz Kamprath, Facilities and Safety; Jan Logan, Occupational Health; Keith Wourms, Coal and Hydrocarbon Processing; and Bernice Young, Oil Sands and Hydrocarbon Recovery.

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Employee Changes

We welcome to the Research Council: **Syed Ahmad**, Coal and Hydrocarbon Processing; **Roland Kallechy**, Materiel Management; **Dyx Kumbongsi**, Biotechnology; **Denise Lamy**, Industrial Technologies; **Robert Oswin**, Industrial Technologies; **Peter Simpson**, Coal and Hydrocarbon Processing; **Betty Ann Snyder**, Advanced Technologies; **Linda Trottier**, Advanced Technologies; **Lesley Witte**, Biotechnology.

We say goodbye to: **Paul Bucholtz, Marie Goudreau, Robert Humphries, Kimberly Perry, Teddy Schmidt, Arie Mar.**

Choose courses with caution

If you are thinking about taking a course this year offered by someone other than the provincial government, you should exercise some caution.

Wolf Gut, Human Resources Department, says that a number of organizations now offer cost-effective training in one-day formats. These courses generally have not been well reviewed by participants from the Research Council. If you don't have a good referral for one of these courses, Wolf suggests you give him a call at 450-5139.

Staff interested in taking a provincial government course will be able to review the 1988 calendar this month in their department, or at any Research Council library site. Requests must be made by the deadline, usually early February, so staff are asked to choose their preferred courses early.

Technical seminar January 26

Dr. Marlene Jones, Advanced Technologies Department, will present the next technical seminar Tuesday, January 26 at 1 p.m. in the southeast Edmonton auditorium. Her topic will be Intelligent Tutoring Systems. All staff are encouraged to attend this seminar series, designed to increase awareness and appreciation of our research projects.